

## ABSTRACT

In a nanochannel thin film in which oxide layers have surfactant micelles therein, the presence of a target substance in a sample solution is detected with a luminescence intensity of a thin film provided by recognition of the target substance with a luminescent recognition reagent in the nanochannels. Upon focusing on a hydrophobic field provided by the presence of the surfactant in pores of a nanometer size, the novel development of a sensor function is enabled.